editor's note

GIVEN THE 23 MONTHS THAT SEPARATE THEIR AGES AND THE NINE FEET THAT SEPARATE THEIR BEDS, IT'S NOT SURPRISING THAT MY BOYS ARE IN A NEAR CONSTANT STATE OF FRICTION. Nor am I surprised when I talk to one of them and their side of the story sounds so reasonable, but then the other fills in the gaps and suddenly it's a completely different situation.

So I shouldn't really be surprised when I see the latest "study" from the wood industry touting (surprise!) wood as a great choice for high-rise buildings (or the *New York Times*' uncritical reporting of the study). The study is ostensibly about sustainability and it compares a state-of-the-art concrete building from 1966 to a theoretical building constructed today of glued laminated timber (or glulam).

The first problem with the study is that it ignores "cradle-to-cradle" impacts. So rather than look at the sustainability impact of wood structures starting with the harvesting of the wood and ending with the demolition of the building, the study stops after the building is constructed. As a result, the study discusses how "wood removes carbon from the atmosphere and stores it for the life of the wood." But by current estimates, just 16% of wood is recycled, 80% is deposited in landfills and 4% is burned—meaning the carbon is released back into the atmosphere. The authors of the study sound just like my bickering boys when they state: "There are currently differing positions on the extent to which sequestration should be considered on the carbon footprint of any material."

But as my colleague John Cross points out, when the end-of-life impact is taken into consideration, the carbon footprint of glulam components is about the same by weight as other structural materials. However, the strength of steel (50 ksi) is about 50 times greater than that of wood (1.15 ksi) while the density of steel is only 17 times that of wood. As a result, significantly less steel is required.

Another issue with the study is that it doesn't include a full life cycle assessment (LCA). Instead, it only considers one environmental impact (embodied carbon) while ignoring other obvious factors such as eutrophication, water usage, land use, resource depletion, acidification, impact on species and toxicity. In contrast to the wood industry's omissive story, a recent study by the USDA Forest Service found a significantly higher environmental impact for glulam products with respect to eutrophication, ozone depletion and smog potential.

Beyond sustainability, the study makes only cursory mention of economic, design and fire resistance issues. Nor does it mention the significant loss of leasable space in a glulam structure (equivalent concrete columns use 31% less space while structural steel uses a whopping 65% less space).

The study does mention that "additional research and physical testing is necessary to verify the performance of the structural system." Among the more than 40 issues the study's authors point out are ones dealing with seismic resistance and, of course, fire resistance. Proponents of wood in high-rise structures often point out that rather than "burning," wood timbers "char." What they don't discuss is the impact of charring on material strength—and the creation of a long-term mold and rot problems from the copious amounts of water needed to extinguish char (something familiar to everyone who has attempted to douse a campfire). Finally, the impact on adjacent structures of a fire in a high-rise wood structure needs to be considered. Vancouver recently increased the height limit on wood structures to six stories; the first building constructed to the new height limits experienced a fire during construction, and embers spread across adjacent areas igniting 10 nearby structures.

When you hear about a study, remember that it's not just what is said that's important, but also what isn't said.

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